

# A comparative study of Bair Hugger® vs Inditherm® in arthroscopic shoulder surgery

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## BACKGROUND

Conductor polymer warming devices like Inditherm® have been recommended as an alternative to forced air warming devices like Bair Hugger®. However, robust studies comparing the efficacy of these two devices are not available and hence this study.

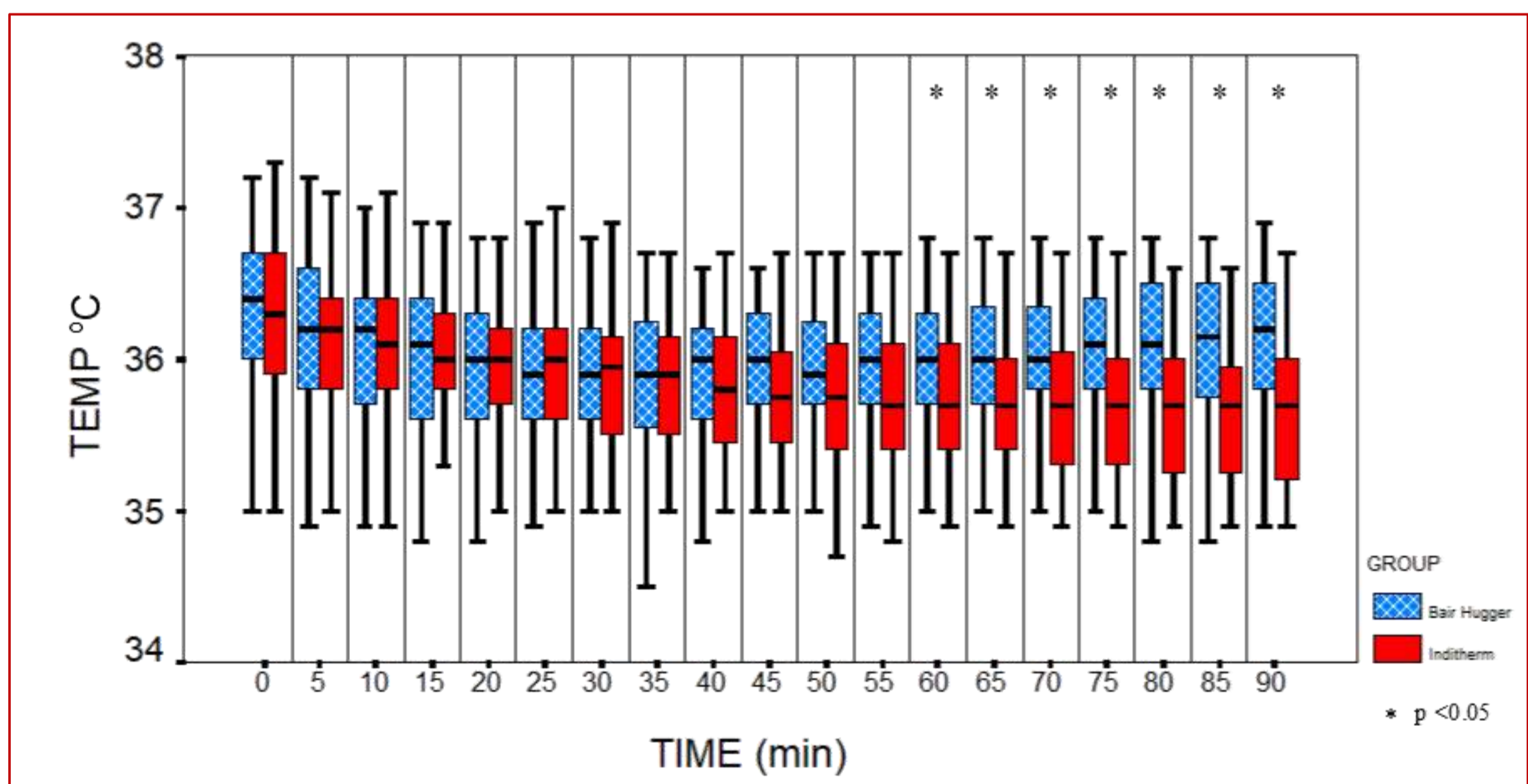
## METHODS

Power analysis with  $\alpha$  at 0.05,  $1-\beta$  at 0.8 and  $0.6^{\circ}\text{C}$  being the clinically significant temperature difference required at least 90 patients for this randomized, prospective, two-treatment parallel design trial. Patients undergoing arthroscopic shoulder surgery with an expected duration of 90 minutes were prospectively chosen and anaesthetic and surgical managements were standardised. They were randomly allocated to either group 1 (Bair Hugger®) or group 2 (Inditherm®). Temperature was measured by nasopharyngeal probe

for 90 minutes post induction and results analysed.

## RESULTS

Of the 102 patients who completed the study, 11 were excluded due to protocol violations leaving 47 in Bair Hugger® and 44 in Inditherm® for analysis. Statistically, the demographics and related data were similar between the groups. At start, the mean temperature was similar in both the groups ( $\sim 36.3^{\circ}\text{C}$ ). Though the temperature steadily declined in both groups for the first 30 minutes, in Group 1 it plateaued at 30-35 minutes. Beyond that, it steadily increased, reaching a mean of  $36.13^{\circ}\text{C}$  at 90 minutes. In Group 2, the decline did not plateau and continued all through the 90 minutes with a mean of  $35.6^{\circ}\text{C}$  at 90 min. The mean temperature of Group 1 was statistically significantly higher than that of Group 2 at all times  $\geq 60$  min. The results are summarized in the box plot shown below:



## CONCLUSION & DISCUSSION

The steady decline in the core temperature for the first 30 minutes in both groups was consistent with the expected heat loss. The steady upward swing for the rest of the surgery in group 1 indicated an acceptable performance in counteracting this expected heat loss. Though the decline was markedly slower in the latter half in group 2, still, the mean never showed an upward trend. Therefore, we conclude that in the presence of significant intraoperative heat loss, like in arthroscopic shoulder surgery, conductor warming devices like Inditherm® failed to prevent or correct hypothermia. In this scenario, forced warm air devices like Bair Hugger® were distinctly superior in maintaining normothermia.